

hills—these occasionally succeed in hunting a few gazelles. New born fawn cannot flee fast enough to escape for the first two days, during that vulnerable period about 20 to 40 per cent of the fawns were observed falling prey to stray dogs and jackals. On the whole predation of the gazelle is not serious in this region.

Poaching: As already mentioned the gazelle occurs (survives) only at localities (Dhanies) of Bishnoies, who give complete protection to the gazelle.

Some times a few gazelles stray out of the limits of the Bishnoi area, these occasionally fall victim to poachers—largely Sanshi or Bhils who hunt animals in the wilderness beyond the boundaries of the Bishnoi areas. Bishnoies complain that some military personnel poach during night with jeeps and search lights close to their 'Dhanies' on gazelles and blackbucks which stray out of the boundaries of their areas.

SURVIVAL

The Indian Gazelle is doing well enough

BHAGVATI BHAVAN,
RATANADA ROAD,
JODHPUR 342 020,
February 3, 1976.

near 'Dhanies'. The Bishnoies even provide water in pots close to their huts in the summer season. As the Jodhpur region is devoid of large predators the gazelle thrives well near the 'Dhanies' of Bishnoies and there is no danger of its extinction as long as the Bishnoies give it protection. Suitable Bishnoi areas should be declared reserves for the gazelle and the Blackbuck that may prove the simplest and most practical and reliable way of preserving these species. Declaration of such reserves may encourage and facilitate the protection task of Bishnoies who have been practicing conservation for centuries.

ACKNOWLEDGEMENTS

I acknowledge my gratefulness to M/s Saga Ram Hariram, and Bhepa Ram and many other Bishnoies who gave me all possible facilities and rendered assistance in their areas for my work. I am also grateful to Dr Ishwar Prakash and Mr S. C. Sakshena for identification of some local flora.

INDRA KUMAR SHARMA

7. ON SOME MAMMALS RECENTLY COLLECTED IN BHUTAN

Since 1966 the Zoological Survey of India has sponsored and sent teams of zoologists headed by Dr. B. Biswas on four occasions for faunistic surveys in different regions of Bhutan.

Chakraborty (1976) dealt with the mammal collections made during the first three surveys conducted in 1966, 1967, and 1969. The

present paper is on the basis of studies of the mammals collected during the Fourth Bhutan Survey conducted during October-December, 1973.

Although the size of the collection is small (29 examples), yet the collection is of great taxonomic interest. The region of investigation of this trip covered the rugged high altitude

areas of north-central and north-eastern Bhutan, ranging between 2000 to 3800 metres above sea level, in the upper reaches of the various tributaries of the Manas river. A few specimens were also collected in the foothills region of central Bhutan.

While the detailed and complete report on the mammals of Bhutan cannot be prepared till the faunal survey of that country is completed, opportunity is hereby taken to make available the valuable data of the present collection.

My sincere thanks are due to Dr B. Biswas of the Zoological Survey of India, for his constant encouragement and for kindly going through the manuscript. I am also indebted to him for letting me share with him the thrilling experiences in the rugged terrain of Bhutan.

All measurements are in millimetres unless otherwise stated. The external measurements and field notes were taken in the field. The following abbreviations have been used in the text:

B: Bullae
 Bl: Basal length
 CB: Condylbasal length
 D: Diastema
 E: Ear
 FA: Forearm
 FL: Frontal length
 GL: Greatest length
 H & B: Head and Body
 HF: Hindfoot
 IOW: Interorbital width
 MW: Maxillary width
 N: Nasal
 O: Orbit
 ON: Occipitonasal
 P: Palate
 PF: Palatal foramen
 PM: Premolar
 POW: Postorbital width
 T: Tail
 TR: Toothrow
 ZW: Zygomatic width

LIST OF COLLECTING LOCALITIES

Gaylegphug (alt. c. 245 m), Aie Valley, south-central Bhutan.

Donga Pemi (alt. c. 3200 m), Donga Range (Kuru Chu Valley), north-eastern Bhutan.

Tashi Yang-tsi (alt. c. 2000 m), Kulong Chu Valley, eastern Bhutan.

Chakademi (alt. c. 2166 m), Kulong Chu Valley, eastern Bhutan.

Bulfai (alt. c. 2476 m), Manas Valley, eastern Bhutan.

Gomchu (alt. c. 2286 m), Gom Chu Valley, eastern Bhutan.

LIST OF SPECIES

Family SORICIDAE

Soriculus nigrescens nigrescens (Gray).
 Gray's Large-clawed Shrew.

Corsira nigrescens Gray, 1842, *Ann. Mag. nat. Hist.*, 10:261. (Darjeeling, West Bengal, India).

Material: 1 subad ♀; Chakademi; 8 Dec. 1973.

Measurements: H & B 76, T 50, HF 11.5, E 6.

Remarks: The specimen was found lying dead on the mule track, apparently trodden on accidentally.

Anourosorex squamipes schmidi Petter.
 Himalayan Burrowing Shrew.

Anourosorex squamipes schmidi Petter, 1963, *Mammalia*, 27:444-445. (Bomdila, Kameng District, Arunachal Pradesh, India).

Material: 1 ♂; Gomchu; 25 Dec. 1973.

Measurements: H & B 116, T 14, HF 17, E 9. Cranial: GL 31, BL 29, P 14, ZW 15. Weight 35 g.

Remarks: This subspecies has been known only from its type-locality in Arunachal. The present specimen is the first one of this form taken in Bhutan, and it thus extends its range further west.

Family PTEROPIDAE

Sphaerias blanfordi (Thomas). Blandford's Fruit Bat.

Cynopterus blanfordi Thomas, 1891, *Ann. Mus. Stor. nat. Genova*, 2, 10:884, 921-922, pl xi, figs 1-2. (Leito, Cheba, Karin (= Karen?) Hills, 1000 m, Burma).

Material: 3♂, 1♀; Tashi Yang-tsi; 6 Dec. 1973.

Measurements: H & B ♂ 74-82, ♀ 84; FM ♂ 50-52, ♀ 56; E ♂ 15.5-17, ♀ 17, Weight ♂ 26-29 g, ♀ 30 g.

Remarks: This species was also taken earlier by us from the western part of the country and has been reported by Chakraborty (1976). The present finding confirms its widespread distribution in Bhutan.

Family MUSTELIDAE

Martes flavigula flavigula (Boddaert). Yellow-throated Marten.

Mustela flavigula Boddaert, 1785, *Elench. Animal*, 88. (Type-locality unknown, 'but traditionally fixed as Nepal', Pocock, 1941, p. 331).

Material: 1♂; Gomchu; 25 Dec. 1973; 1♀; Donga Pemi; 29 Nov. 1973.

Measurements: H & B ♂ 522, ♀ 505; T ♂ 413, ♀ 395; HF ♂ 105, ♀ 85; E ♂ 44, ♀ 35. Cranial: CB ♂ 102.6, ♀ 90.1; ZW ♂ 61.3, ♀ 51.4; POW ♂ 23.3, ♀ 23.6; IOW ♂ 23.9, ♀ 20.1; MW ♀ 20.1, ♀ 16.7; PM 4 ♂ 10, ♀ 8.

Remarks: The occurrence of the Yellow-throated Marten in Bhutan is recorded for the first time. It was diurnal and was moving in pairs at Donga Pemi, while it was nocturnal and was moving in a family party of three in the early hours of the evening at Gomchu. The Donga Pemi specimen had its stomach filled mostly (about 70%) with larvae of insects and the rest with figs, berries and seeds of oak.

Family SCIURIDAE

Petaurista nobilis singhei Saha. Bhutan Flying Squirrel.

Petaurista nobilis singhei Saha, *Proc. zool. Soc., Calcutta*, 28(1):27-29. (Gomchu, Gom Chu Valley, eastern Bhutan).

Material (part of the type series): 4 ♀; Gomchu; 25-27 Dec. 1973.

Measurements: H & B 422-461; T 500-590; HF 82-85; E 45-51. Cranial: ON 76.4-79.8; P 38.5-42.7; TR 17.5-18.5; N 23.3-24.3; FL 29-31; O 19.6-20.1; B 12.7-13.2.

Remarks: This is the only species of flying squirrel known from Bhutan. Chakraborty (1976) reported this form under *Petaurista magnificus* (Hodgson). The taxonomic status of *Petaurista magnificus* (Hodgson) and *Petaurista nobilis* (Gray) has been the subject of controversy over the years. Blandford (1891) treated Gray's *nobilis* as a synonym of Hodgson's *magnificus*, and Ellerman (1961) followed the same treatment. Recent studies reveal that these two forms belong to two distinct species. The well-defined saddle patch isolates *P. nobilis* from the rest of the flying squirrels. Detailed discussion has been given in a separate paper (1977). However, the Bhutanese form was found to represent a hitherto undescribed subspecies of *Petaurista nobilis* (Gray), and was so described by Saha (1977).

Widespread in moist deciduous forests between 1000 m to 2500 m altitude.

Callosciurus erythraeus bhutanensis (Bonhote). Bhutan Squirrel.

Sciurus erythraeus bhutanensis Bonhote, 1901, *Ann. Mag. nat. Hist.*, 7:161. (Bhutan).

Material: 1♂; Gaylegphug; 28 Oct. 1973.

Measurements: H & B 222; T 148; HF 48; E 18.5. Weight 402 g.

Remarks: Found to be fairly common in the tropical mixed forests from the foothills

to the height of about 2000 m.

Callosciurus maccllellandi maccllellandi (Horsfield). Himalayan Striped Squirrel.

Sciurus maccllellandi Horsfield, 1839, *Proc. zool. Soc. Lond.*, 152. (Assam, India).

Material: 1♂, 1♀; Bulfai; 18 Dec. 1973: 1♀; Tashi Yang-tsi; 4 Dec. 1973.

Measurements: H & B ♂ 118, ♀ 116-124; T ♂ 99, ♀ 90-91; HF ♂ 28, ♀ 24-28; E ♂ 13, ♀ 11-14. Weight ♂ 45 g, ♀ 49-57 g.

Remarks: Widespread throughout Bhutan in different types of forests from the foothills to about 3000 m altitude.

Dremomys lokriah bhotia Wroughton. Bhotia Ground Squirrel.

Dremomys lokriah bhotia Wroughton, 1916, *J. Bombay nat. Hist. Soc.*, 24:639. (Sedonchen, Sikkim, India).

Material: 1♂ Donga Pemi; 24 Nov. 1973: 1♂; Tashi Yang-tsi; 3 Dec. 1973: 1♂, 4♀; Bulfai; 13-19 Dec. 1973: 1♀ Gomchu; 24-27 Dec. 1973.

Measurements: H & B ♂ 151-191, ♀ 175-187; T ♂ 120-140, ♀ 130-140; HF ♂ 42-46, ♀ 41-44; E ♂ 19-22, ♀ 20-22. Weight ♂ 165-205 g, ♀ 140-205 g.

Remarks: Widespread in damp forests from the foothills to about 3200 m altitude.

Ratufa bicolor gigantea (M'Clelland). Malayan Giant Squirrel.

Sciurus giganteus M'Clelland, 1839, *Proc. zool. Soc. Lond.*, 150. (Assam, India).

Material: 1♀; Gaylephug; 30 Oct. 1973.

Measurements: H & B 352, T 456, HF 86, E 34.

Remarks: Widespread in mixed forests from the foothills to about 2500 m altitude.

Family MURIDAE

Rattus rattus tistae Hinton. Sikkim House Rat.

Rattus rattus tistae Hinton, 1918, *J. Bombay nat. Hist. Soc.*, 26:68. (Pashok, Sikkim, India).

Material: 1♂, 1♀; Bulfai; 14-15 Dec. 1973.

Measurements: H & B ♂ 152, ♀ 136; T ♂ 170, ♀ 150; HF ♂ 31, ♀ 31; E ♂ 21.5, ♀ 21. Cranial: ♂: ON 36.5, P 17, D 9, N 12.5, TR 6.5, PF 6. (Skull of the female specimen broken). Weight ♂ 92 g, ♀ 66 g.

Remarks: This species of commensal House Rat was found to be spreading very rapidly. Vehicular traffic must have played a significant role in their dispersal.

Rattus nitidus nitidus (Hodgson). Himalayan Rat.

Mus nitidus Hodgson, 1845, *Ann. Mag. nat. Hist.*, 15:267. (Nepal).

Material: 1♀; Bulfai; 19 Dec. 1973.

Measurements: H & B 180, T 180, HF 36, E 22. Cranial: ON 41.8, P 19, D 10.5, TR 7, N 16.3, PF 7. Weight 145 g. Mammary: 3 + 1 + 1 = 6 pairs, lactating.

Remarks: The Himalayan Rat was found to be common in and around the villages.

SUBHENDU SEKHAR SAHA

ZOOLOGICAL SURVEY OF INDIA,
CALCUTTA 700 016,
February 6, 1976.

REFERENCES

BLANFORD, W. T. (1891): The Fauna of British India, Mammalia, pt. 2. Taylor & Francis. London.

CHAKRABORTY, S. (1976): On a collection of mammals from Bhutan. *Rec. Zool. Surv. India* 68:1-20.

ELLERMAN, J. R. & MORRISON-SCOTT, T. C. S. (1951): Checklist of palaeartic and Indian Mammals. Brit. Mus., London.

ELLERMAN, J. R. (1961): The Fauna of India including Pakistan, Burma and Ceylon. Mammalia

3 (Rodentia), 1. Government of India, Delhi.

PETTER, F. (1963): Un nouvel insectivore de Nord de' Assam: *Anourosorex squamipes schmidi* nov. subsp. *Mammalia*, 27:444-445.

POCOCK, R. I. (1941): The Fauna of British

India, including Ceylon and Burma. Mammalia, 1. Taylor & Francis. London.

SAHA, S. S. (1977): A new subspecies of the Flying Squirrel, *Petaurista nobilis* (Gray), from Bhutan. *Proc. zool. Soc. Calcutta*, 28(1):27-29.

8. THREE BIRD SPECIES SEEN FOR THE FIRST TIME IN SRI LANKA

A short visit (31 October to 11 November 1974) was made to Sri Lanka to see the many endemic birds that occur mostly in the forested areas. Several days of this trip were productively spent on the east coast in the Trincomalee district as far north as Pigeon Island.

The observer carried out four early morning sea watches and an interesting list of sea birds was noted which included the following three species previously unrecorded in Sri Lanka, species well known to him in parts of the world where they are of regular occurrence.

SOOTY SHEARWATER *Puffinus griseus*. Small dark coloured shearwaters were seen on most mornings of which the majority were too far

out at sea for accurate identification. A total of 15 birds came close inshore when the size, colour, mode of flight and silvery wing linings allowed positive identification.

BLACKHEADED GULLS *Larus ridibundus*. Two birds were seen together on 7th November in a flock of 23 Brownheaded Gulls *L. brunni-cephalus*.

ARCTIC SKUA *Stercorarius parasiticus*. Three dark phase birds were seen hunting together on 9 November. Their size in comparison with the Common Terns *Sterna hirundo* which they were harrying ruled out confusion with the larger Pomarine Skua *S. pomarinus* and the Great Skua *S. skua*.

120, MADELINE ROAD,
MORNINGSIDE,
DURBAN, 40001,
S. AFRICA,
January 13, 1976.

J. C. SINCLAIR

9. SPOTBILL DUCK (*ANAS P. POECILORHYNCHA*) FORSTER NESTING IN A TREE

(With a plate)

In a reedless pond of the Victoria Park, Bhavnagar, stands a solitary stunted Babul (*Acacia nilotica*), a relict of the past, half dead and much of the tree covered by a parasitic climber (*Cassytha filiformis*) forming a thick mesh

over it. The tree was about ten feet high and in its middle, about 4 feet above the water, was placed the nest of the Spotbill. This is the first nest I have seen of this species in a tree. The extraordinary part of this dis-